IN THE CLAIMS

Please cancel claims 1-25, 84, and 86-92 without prejudice or disclaimer. Please add new claims 93-139, which follow below.

93. (New) A recombinant chromosome comprising:

(i) the centromere of human chromosome #14;

(ii) two telomere sequences;

(iii) at least one recognition sequence for a site-directed recombination enzyme;

(iv) at least two chromosome fragments that are not adjacently located in a natural chromosome; and

(iv) a marker gene.

94. (New) The recombinant chromosome of claim 93, wherein (A) said centromere is contained within a human chromosome #14 fragment and (B) said recombinant chromosome comprises at least one chromosome fragment that is not naturally located adjacent to said human chromosome #14 fragment.

95. (New) The recombinant chromosome of claim 94, wherein said human chromosome #14 fragment is a centromere-comprising portion of the chromosome fragment denoted as SC20.

96. (New) The recombinant chromosome of claim 93, wherein one chromosome fragment is a fragment of human chromosome #2.

97. (New) The recombinant chromosome of claim 93, wherein one chromosome fragment is a fragment of human chromosome #22.

98. (New) The recombinant chromosome of claim 93, comprising a human chromosome #14 fragment and a human chromosome #2 fragment.

chromosome #14 fragment and said second chromosome fragment by a targeting vector.

137. (New) The method of claim 127, wherein said recognition sequence for a site-directed recombination enzyme is positioned at said desired site in said human chromosome #21 fragment and said second chromosome fragment by a targeting vector.

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138. (New) The method of claim 122, wherein said green fluorescent protein gene or functional variant thereof, is obtained from the jellyfish *Aequorea victoria*.

139. (New) The method of claim 132, wherein said green fluorescent protein gene or functional variant thereof, is obtained from the jellyfish *Aequorea victoria*.

99. (New) The recombinant chromosome of claim 98, wherein said chromosome fragments comprise a human antibody heavy-chain gene locus and a human antibody light-chain kappa gene locus.

100. (New) The recombinant chromosome of claim 98, wherein said chromosome fragments comprise the entire region of the human antibody heavy-chain gene locus and the entire region of the human antibody light-chain kappa gene locus.

101. (New) The recombinant chromosome of claim 93, comprising a human chromosome #14 fragment and a human chromosome #22 fragment.

102. (New) The recombinant chromosome of claim 101, wherein said chromosome fragments comprise a human antibody heavy-chain gene locus and a human antibody light-chain lambda gene locus.

103. (New) The recombinant chromosome of claim 101, wherein said chromosome fragments comprise the entire region of the human antibody heavy-chain gene locus and the entire region of the human antibody light-chain lambda gene locus.

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104. (New) The recombinant chromosome of claim 93, which is generated by chromosome recombination between the chromosome fragment denoted as SC20 and another chromosome fragment.

105. (New) The recombinant chromosome of claim 104, wherein said recombinant chromosome comprises the entire region of the human antibody heavy chain gene locus.

106. (New) The recombinant chromosome of claim 104, which is generated by chromosome recombination between the chromosome fragment denoted as SC20 and a fragment of a chromosome other than the human chromosome #14.

107. (New) The recombinant chromosome of claim 106, wherein the fragment of a chromosome other than the human chromosome #14 is a fragment of a human chromosome #2, which comprises a human antibody light-chain kappa gene locus.

108. (New) The recombinant chromosome of claim 106, wherein the fragment of a chromosome other than the human chromosome #14 is a fragment of human chromosome #22, which comprises a human antibody light-chain lambda gene locus.

109. (New) The recombinant chromosome of claim 93, which comprises both a human antibody heavy-chain gene locus and a human antibody light-chain gene locus.

110. (New) The recombinant chromosome of claim 93, which comprises both the entire region of the human antibody heavy-chain gene locus and the entire region of the human antibody light-chain gene locus.

111. (New) The recombinant chromosome of claim 93, wherein said recognition sequence is the loxP sequence and said site-directed recombination enzyme is the Cre recombinase.

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112. (New) The recombinant chromosome of claim 93, wherein said recognition sequence is the FRP sequence and said site-directed recombination enzyme is the FLP recombinase.

113. (New) A recombinant chromosome, which comprises:

(i) the centromere sequence of a human chromosome #21;

(ii) two telomere sequences;

(iii) at least one recognition sequence for site-directed recombination enzyme;

(iv) at least two chromosome fragments that are not adjacently located in a natural chromosome; and

(iv) a marker gene.

114. (New) The recombinant chromosome of claim 113, wherein (A) said centromere is contained within a human chromosome #21 fragment and (B) said recombinant chromosome comprises at least one chromosome fragment that is not naturally located adjacent to said human chromosome #21 fragment.

115. (New) The recombinant chromosome of claim 113, wherein said recognition sequence is the loxP sequence and said site-directed recombination enzyme is the Cre recombinase.

116. (New) The recombinant chromosome of claim 113, wherein said recognition sequence is the FRP sequence and said site-directed recombination enzyme is the FLP recombinase.

117. (New) A method for producing a recombinant chromosome, comprising:

(a) preparing a first cell comprising a fragment of human chromosome #14 that has a centromere and a recognition sequence for a site-directed recombination enzyme positioned at desired site within said fragment;

(b) preparing a second cell comprising a second chromosome fragment, which comprises a recognition sequence for a site-directed recombination enzyme positioned at desired site in said second chromosome fragment;

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(c) fusing said first cell with said second cell to produce a hybrid cell; and

(d) expressing a site-directed recombination enzyme in said hybrid cell,

wherein said enzyme causes site-directed recombination between said fragment of human chromosome #14 and said second chromosome fragment to generate a recombinant chromosome, wherein said recombinant chromosome comprises the centromere of human chromosome #14 and a portion of the second chromosome fragment.

118. (New) The method of claim 117, wherein said recombinant chromosome is transferred from said hybrid cell into a new cell type via microcell fusion.

119. (New) The method of claim 118, wherein said new cell type is a CHO cell.

120. (New) The method of claim 117, wherein said first cell and said second cell are chicken DT-40 cells.

121. (New) The method of claim 117, wherein said site-directed recombination is detected by the expression of a reporter gene.

122. (New) The method of claim 121, wherein said reporter gene is a green fluorescent protein gene or functional variant thereof.

123. (New) The method of claim 117, wherein said recognition sequence in said human chromosome #14 fragment and said recognition sequence in said second chromosome fragment are loxP sequences, and said site-directed recombination enzyme is the Cre recombinase.

124. (New) The method of claim 117, wherein said recognition sequence in said human chromosome #14 fragment and said recognition sequence in said second chromosome fragment is the FRP sequence and said site-directed recombination enzyme is the FLP recombinase.

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125. (New) The method of claim 117, said human chromosome #14 fragment is the chromosome fragment denoted as SC20.

126. (New) The method of claim 117, said second chromosome fragment is a fragment of either human chromosome #2 or human chromosome #22, comprising a human antibody light chain gene locus.

127. (New) A method for producing a recombinant chromosome, comprising:

(a) preparing a first cell comprising a fragment of human chromosome #21 that has a centromere and a recognition sequence for a site-directed recombination enzyme positioned at desired site within said fragment;

(b) preparing a second cell comprising a second chromosome fragment, which comprises a recognition sequence for a site-directed recombination enzyme positioned at desired site in said second chromosome fragment;

(c) fusing said first cell with said second cell to produce a hybrid cell; and

(d) expressing a site-directed recombination enzyme in said hybrid cell,

wherein said enzyme causes site-directed recombination between said fragment of human chromosome #21 and said second chromosome fragment to generate a recombinant chromosome, wherein said recombinant chromosome comprises the centromere of human chromosome #21 and a portion of the second chromosome fragment.

128. (New) The method of claim 127, wherein said recombinant chromosome is transferred from said hybrid cell into a new cell type via microcell fusion.

129. (New) The method of claim 128, wherein said second cell is a CHO cell.

130. (New) The method of claim 127, wherein said first cell and said second cell are chicken DT-40 cells.

131. (New) The method of claim 127, wherein said site-directed recombination is detected by the expression of a reporter gene.

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132. The method of claim 131, wherein said reporter gene is a green fluorescent protein gene or functional variant thereof.

133. (New) The method of claim 127, wherein said recognition sequence in said human chromosome #21 fragment and said recognition sequence in said second chromosome fragment are loxP sequences, and said site-directed recombination enzyme is the Cre recombinase.

134. (New) The method of claim 127, wherein said recognition sequence in said human chromosome #21 fragment and said recognition sequence in said second chromosome fragment is the FRP sequence and said site-directed recombination enzyme is the FLP recombinase.

135. (New) A cell comprising the recombinant chromosome of any one of claims 93 or 113.

136. (New) The method of claim 117, wherein said recognition sequence for a site-directed recombination enzyme is positioned at said desired site in said human